

WHAT IS CLAIMED IS:

1. A motor control apparatus comprising:  
pulse signal generating means for generating a  
5 first pulse signal whose period corresponds to the  
speed at which a driven object moves and a second pulse  
signal out of phase with the first pulse signal;  
edge detection means for detecting rising edges  
and falling edges of the first and second pulse  
10 signals;  
edge interval information acquisition means for  
acquiring information about intervals between the edges  
of either the first or second pulse signal detected by  
the edge detection means and the edges of the other  
15 pulse signal detected next;  
correction value acquisition means for acquiring  
correction values for the intervals between the edges  
of either the first or second pulse signal and the  
edges of the other pulse signal detected next; and  
20 control means for controlling movement of the  
driven object based on the information acquired by the  
edge interval information acquisition means and on the  
correction values.
- 25 2. The motor control apparatus according to claim 1,  
wherein the edge interval information acquisition means  
acquires:

first edge interval information about the interval from a rising edge of the first pulse signal to a rising edge of the second pulse signal;

5 second edge interval information about the interval from a rising edge of the second pulse signal to a falling edge of the first pulse signal;

10 third edge interval information about the interval from a falling edge of the first pulse signal to a falling edge of the second pulse signal; and

15 fourth edge interval information about the interval from a falling edge of the second pulse signal to a rising edge of the first pulse signal.

3. The motor control apparatus according to claim 1,  
15 wherein the correction value acquisition means calculates respective correction values for the first, second, third, and fourth edge interval information.

4. The motor control apparatus according to claim 3,  
20 wherein the correction value acquisition means calculates the correction values based on the first, second, third, and fourth edge interval information as well as on information about edge intervals between rising edges or falling edges of either the first or  
25 second pulse signal, when the driven object is moved at a predetermined speed.

5. The motor control apparatus according to claim 3,  
wherein the correction value acquisition means  
comprises storage means for storing multiple pieces  
each of the first, second, third, and fourth edge  
5 interval information.

6. The motor control apparatus according to claim 5,  
wherein the correction value acquisition means  
comprises calculation means for calculating respective  
10 average values for the first, second, third, and fourth  
edge interval information using values stored in the  
storage means.

7. The motor control apparatus according to claim 6,  
15 wherein the correction value acquisition means  
calculates respective correction values for the first,  
second, third, and fourth edge interval information by  
dividing the respective average values of the first,  
second, third, and fourth edge interval information and  
20 single-edge interval information about either the first  
or second pulse signal by the number of single-edge  
intervals.

8. The motor control apparatus according to claim 2,  
25 wherein the control means uses the first, second, third,  
and fourth edge interval information acquired by the  
edge interval information acquisition means as well as

the correction values for the respective edge interval information.

9. A control method for a motor control apparatus,  
5 the motor control method comprising:

a pulse signal generating step of generating a first pulse signal whose period corresponds to the speed at which a driven object moves and a second pulse signal out of phase with the first pulse signal;

10 an edge detection step of detecting rising edges and falling edges of the first and second pulse signals;

15 an edge interval information acquisition step of acquiring information about intervals between the edges of either the first or second pulse signal detected in the edge detection step and the edges of the other pulse signal detected next;

20 a correction value acquisition step of acquiring correction values based on information about the intervals between the edges of either the first or second pulse signal and the edges of the other pulse signal detected next as well as on information about edge intervals between rising edges or falling edges of either the first or second pulse signal; and

25 a control step of controlling movement of the driven object based on the information acquired by the

edge interval information acquisition means and on the correction values.

10. A motor control method, comprising:

a pulse signal generating step of generating a 5 first pulse signal whose period corresponds to the speed at which a driven object moves and a second pulse signal out of phase with the first pulse signal;

an edge detection step of detecting rising edges and falling edges of the first and second pulse 10 signals;

an edge interval measuring step of measuring intervals between edges of either the first or second pulse signal and the edges of the other pulse signal detected next as well as intervals between rising edges 15 or falling edges of either the first or second pulse signal when the driven object moves at a predetermined constant speed;

a calculation step of calculating correction values for the intervals between the edges of either 20 the first or second pulse signal and the edges of the other pulse signal detected next, based on information about the edge intervals measured in the edge interval measuring step; and

a control step of controlling movement speed of 25 the driven object based on the correction values.

11. A recording apparatus which performs recording by causing a carriage carrying a recording head to scan over a recording medium, based on information transmitted from an external device, the recording apparatus comprising:

recording data generating means for converting the information transmitted from the external device into recording data compatible with configuration of the recording head;

10       pulse signal generating means for generating a first pulse signal whose period corresponds to transport speed of recording medium and a second pulse signal out of phase with the first pulse signal; and control means for controlling the scanning of the 15 recording head and transport of the recording medium, wherein the control means comprises:

edge detection means for detecting rising edges and falling edges of the first and second pulse signals;

20       edge interval information acquisition means for acquiring information about intervals between the edges of either the first or second pulse signal detected by the edge detection means and the edges of the other pulse signal detected next;

25       correction value acquisition means for acquiring correction values for the intervals between the edges

of either the first or second pulse signal and the edges of the other pulse signal detected next; and second control means for controlling movement of the recording apparatus based on the information 5 acquired by the edge interval information acquisition means and on the correction values.

12. The recording apparatus according to claim 11, wherein the recording head is an ink jet recording head 10 which discharges ink for recording.

13. The recording apparatus according to claim 11, wherein the recording head uses thermal energy to discharge ink and comprises a thermal energy converter 15 for generating thermal energy to be given to the ink.

14. A recording apparatus which performs recording by causing a carriage carrying a recording head to scan over a recording medium based on information 20 transmitted from an external device, the recording apparatus comprising:

recording data generating means for converting the information transmitted from the external device into recording data compatible with configuration of the 25 recording head; and

a controller which controls the scanning of the recording head and transport of the recording medium, wherein the controller comprises:

detection means for detecting first pulse

5 information which corresponds to speed of the scanning  
or transport and second pulse information out of phase  
with the first pulse information;

edge detection means for detecting rising edges and falling edges of the detected first pulse

10 information and second pulse information;

edge interval measuring means for measuring edge-to-edge periods using the detected rising edges and falling edges;

calibration means for calibrating the measured

15 edge-to-edge periods with a reference period for  
driving the driven object at constant speed;

correction means for correcting the first pulse information and second pulse information based on the calibration; and

20 control means for generating control commands to  
drive the driven object based on the corrected first  
pulse information and second pulse information.

15. The recording apparatus according to claim 14,  
25 wherein the recording head is an ink jet recording head  
which discharges ink for recording.

16. The recording apparatus according to claim 14,  
wherein the recording head uses thermal energy to  
discharge ink and comprises an thermal energy converter  
for generating thermal energy to be given to the ink.